

ABSTRACT OF THE DISCLOSURE

1 Lipid-nucleic acid particles can provide therapeutic benefits, even when the nucleic  
2 acid is not complementary to coding sequences in target cells. It has been found that lipid-  
3 nucleic acid particles, including those containing non-sequence specific  
4 oligodeoxynucleotides, can be used to stimulate cytokine secretion, thus enhancing the overall  
5 immune response of a treated mammal. Further, immune response to specific target antigens  
6 can be induced by administration of an antigenic molecule in association with lipid particles  
7 containing non-sequence specific oligodeoxynucleotides. The nucleic acid which is included  
8 in the lipid-nucleic acid particle can be a phosphodiester (i.e., an oligodeoxynucleotide  
9 consisting of nucleotide residues joined by phosphodiester linkages) or a modified nucleic  
10 acid which includes phosphorothioate or other modified linkages, and may suitably be one  
11 which is non-complementary to the human genome, such that it acts to provide  
12 immunostimulation in a manner which is independent of conventional base-pairing  
13 interactions between the nucleic acid and nucleic acids of the treated mammal. In particular,  
14 the nucleic acid may suitably contain an immune-stimulating motif such as a CpG motif, or an  
15 immune stimulating palindromic sequence. The cationic lipid included in the nucleic acid  
16 particles may be suitably selected from among DODAP, DODMA, DMDMA, DOTAP, DC-  
17 Chol, DDAB, DODAC, DMRIE, DOSPA and DOGS. In addition, the lipid particle may  
18 suitably contain an modified aggregation-limiting lipid such as a PEG-lipid, a PAO-lipid or a  
19 ganglioside.